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AUTHOR	Williams, Robert L.; Bush, Vivian J.; Park, Soo-Hee; Malone, L. Yvonne; Jessup, Kary
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ABSTRACT

A sample of 1,239 students in the sixth, seventh, and eighth grades of 3 public schools used a "yes" or "no" format to respond to a 12-item Work Ethic Scale (WES) designed to measure students' intrinsic and extrinsic valuing of work. Analysis shows that: (1) the WES was minimally related to a measure of social desirability; (2) item-remainder correlations were between 0.20 and 0.46; (3) the internal consistency was 0.70; (4) WES scores were significantly related to achievement and work-habits ratings; (5) the negatively worded WES items were more strongly related to criterion measures than were the positively worded items; and (6) the WES consisted of two empirical factors (utility of work and commitment to hard work). Demographic comparisons revealed that girls scored higher than boys on the WES, that European Americans scored higher than Hispanic Americans, but not higher than African Americans, and that eighth graders scored higher than sixth and seventh graders. (Contains 5 tables and 26 references.) (Author/SLD)

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ED 452 257

Running head: WORK ETHIC FOR MIDDLE SCHOOLERS

Work Ethic Scale for Middle School Students

Robert L. Williams, Vivian J. Bush, Soo-Hee Park, L. Yvonne Malone, and Kary Jessup

The University of Tennessee

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Robert L. Williams

Department of Educational Psychology

The University of Tennessee, Knoxville

Knoxville, Tennessee 37996-3400

(423) 974-6625

email: bobwilliams@utk.edu

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Abstract

A sample of 1,239 students in the 6th, 7th, and 8th grades of three public schools used a yes or no format to respond to a 12-item Work Ethic Scale (WES) designed to measure students' intrinsic and extrinsic valuing of work. Analysis showed that the WES was minimally related to a measure of social desirability, that item-remainder correlations were between .20 and .46, that the internal consistency was .70, that WES scores were significantly rated to achievement and work-habits ratings, that the negatively worded WES items were more strongly related to criterion measures than were the positively worded items, and that the WES consisted of two empirical factors (utility of work and commitment to hard work). Demographic comparisons revealed that girls scored higher than boys on the WES, that European Americans scored higher than Hispanic Americans but not higher than African Americans, and that 8th graders scored higher than 6th and 7th graders.

Work Ethic Scale for Middle School Students

With the emergence of the 21st century, schools increasingly will need to develop programs that integrate school with the world of work. According to Smith and Rojewski (1993), legislation in some states already requires a school-to-work program as part of the curriculum. Curricula are being designed especially to help middle school students explore career options (Brandeis University, Center for Human Resources, 1992). Although career planning is an important target in such programs, the promotion of a generic work ethic might be even more important. Failure to appreciate the value of work can lead to a number of adverse consequences: underdeveloped work skills, minimal satisfaction from work, and unrealistic expectations for future career success. As early adolescents begin to contemplate adult work opportunities, an examination of their work ethic might help them develop a more realistic framework for career planning (Sears, 1985).

Concept of Work Ethic

Systematically promoting the work ethic in early adolescence requires a clear definition of the concept. The term work ethic has been used in the literature since the turn of the century, but it did not gain popularity until the 1950s. Although research on the work ethic proliferated from the 1950s through the 1970s, that research focused mostly on adults. Little has been published about the definition, development, and assessment of a work ethic among adolescents.

The notion of work ethic in the current study was based on Weber's (1958) theory of the Protestant work ethic. Work ethic was defined as the extent to which work is perceived as satisfying and useful. This conception of work ethic is aligned closely with certain facets of the Cherrington (1980) continuum of work values. The Cherrington model describes seven different

types of work values: workaholic–work transcends all other considerations; terminal value–work is a positive virtue; generalized instrumental value–work contributes to the attainment of worthwhile goals; self-evaluation–work leads to an increase in self-esteem; specific instrumental value–work provides a way to obtain specific rewards; unfortunate obligation–work is secondary to other life activities and values; and mind-numbing violence–work is punishing and without redeeming value. Although the notion of work ethic as used in the current study could relate to several of Cherrington's concepts, it appears to parallel most closely the concepts of work as a positive virtue and work as contributing to the attainment of worthwhile goals.

The Relation of Work Ethic to Demographic Variables

Research that has related the development of the work ethic to important demographic variables (e.g., gender, ethnicity, and grade level) has been limited and inconsistent. For example, some researchers (e.g., Gribbons & Lohnes, 1965; Prawat, Jones, & Hampton, 1979; Wijting, Arnold, & Conrad, 1977) have highlighted differences between what males and females value in occupations; but other researchers (e.g., Buchholz, 1978; Elizur, 1993; Mottaz, 1986; Rowe & Snizek, 1995) have found similarity between males and females in overall work values. Unfortunately, most of the gender-related research on work ethic has been done at the adult level rather than in early adolescence.

The three major ethnic groups represented in the current study were European Americans, African Americans, and Hispanic Americans. Although the research is limited, work-ethic comparisons among those groups have produced negligible differences. For example, Black's (1977) comparison of inner-city African American males and European American males at the junior high level produced no significant ethnic differences in work ethic. Similarly, Torres and

Kapes' (1990) comparison of the work values of African American and Hispanic American students who were candidates for a Minority Leadership Development Project in a community college setting yielded no significant differences.

The findings on grade-level differences in work values in early adolescence have related mainly to what young people value in a job (rather than overall work ethic). Nonetheless, some research has indicated that middle school students have a well-established work ethic. In fact, Kuldau and Hollis (1971) reported that "it is likely that children have developed attitudes toward the world of work by the time they enter fourth grade" (p. 397). Most of the grade-level comparisons have been between junior high and higher grade levels. For example, Gribbons and Lohnes (1965) found that work values rated high at the 8th-grade level had remained high through the 10th and 12th grades.

Assessment of Work Ethic During Early Adolescence

Most of the instruments that have been designed to measure Weber's work-ethic construct were developed for adults. However, several scales that measure the characteristics that individuals most value in differing professions could be used with young adolescents. Super's (1970) Work Values Inventory (WVI) is one of the most popular work values surveys used with adolescents. Developed for grades seven and higher, the scale identifies the facets of a job or career (e.g., social interaction, variety in work activities, and mastery of work-related phenomena) an individual finds most attractive. For example, the importance of mastery might be reflected in such statements as "work which provides opportunity for independent thinking and for learning how and why things work" (p. 9).

The Ohio Work Values Inventory (OWVI; Hales & Fenner, 1975) was developed to measure work values for elementary and middle school students. An example of an item on the OWVI is "valuing jobs which permit one to work alone" (p. 20). Using an experimental form of the OWVI, Hales and Fenner (1972) found that 5th, 8th, and 11th graders in a small Appalachian school system valued a combination of extrinsic benefits (such as job security and pay) and intrinsic features of work (self-realization). However, intrinsic satisfaction tended to increase in importance across the three grade levels, whereas the extrinsic benefits slightly diminished in importance. In general, the findings indicated that work values are well developed by 5th grade and are relatively stable throughout adolescence.

Another work values inventory that has been used with middle school students is the Survey of Work Values (SWV; Wollack, Goodale, Wijting, & Smith., 1971). Using the SWV with students in grades 6, 9, 10, and 12 (as well as with their parents), Wijting, Arnold, and Conrad (1978) found that 6th and 10th graders tended to have values similar to those of their same-gender parents. Twelfth graders of both genders, on the other hand, tended to have values more consistent with those of their fathers. Ninth graders had values somewhat unlike those of either parent.

Purpose of the Study

No work-ethic instrument designed specifically to assess middle-level students' generic valuing of work (as opposed to preferences for specific types or conditions of work) was identified in the literature. Thus, the current study was designed (a) to evaluate the psychometric properties of a brief measure of the work ethic at the middle-grade level and (b) to examine demographic differences (i.e., gender, ethnicity, and grade level) in scores on the instrument. The

instrument includes items adapted from adult measures of the work ethic based on Weber's (1958) work-ethic construct. The items on this scale reflect both the intrinsic valuing of work (i.e., deriving satisfaction from working hard and working well) and possible extrinsic benefits (e.g., achieving good outcomes and being successful). The psychometric analysis focused on the adequacy of individual items, internal consistency of the scale, and criterion-related and construct-related validity of the instrument.

Method

Sample

A sample of 1,239 students in the sixth, seventh, and eighth grades of three U.S. middle schools participated in the study. The sample included an approximately equal distribution across gender and grade levels. Although Native American and Asian American students were represented in the sample, the three major ethnic groups were African American (n = 374), Hispanic American (n = 153), and European American students (n = 557).

The schools that participated in the study are located in two different sections of the U.S. School 1 (n = 341) is located in a northeastern U.S. city with a population of about 55,000. In the state's classification of school districts from poorest (A) to wealthiest (J), this school's district was classified as B. School 2 (n = 254) is located in a southeastern U. S. city with a population of approximately 150,000. This school is an urban school with 100% of its students qualifying for free or reduced-price lunches. School 3 (n = 644) is located in a suburban area of the same southeastern city as School 2. Thirty-three percent of School 3's students qualified for free or reduced-price lunches.

Instruments

Students were asked to respond to one questionnaire, and teachers were requested to rate the academic achievement of all the participating students and the work habits of a subsample of students from each class. The student questionnaire required approximately 20 minutes to administer, and the teacher rating forms required about one hour per class to complete.

Work Ethic Scale. The work-ethic items were embedded in a 30-item Middle School Survey (MSS) that also included measures of school valuing and social desirability. All items on the MSS were answered as yes or no. The current article deals only with the work-ethic and social-desirability portions of the MSS. The work-ethic portion contained 12 items, 6 items stated positively and 6 stated negatively. One point was given for either a yes on a positively worded item or a no on a negatively worded item. A no response to a positive item or a yes response to a negative item received a score of zero.

In an earlier data collection using a longer version of the MSS, 15 items designed to measure work ethic were adapted from previous measures of the work ethic. Those measures included the Protestant Work Ethic Scale (Weber, 1958) and the Survey of Work Values (Wollack et al., 1971). Items included in the longer version of the MSS had been field tested for clarity and relevance with approximately 6 middle school teachers and 12 middle school students. Factor analysis of responses to the 15 work-ethic items in the longer MSS indicated that 6 items loaded on a primary factor and accounted for more than 80% of the common variance. Those 6 items formed the basis of the current Work Ethic Scale. Because all 6 items retained from the original set of 15 items were worded positively, 6 negatively worded companion items were added to the scale—resulting in a 12-item Work Ethic Scale (see Table 1).

Social-desirability items. Because of time limitations for administering the revised Middle School Survey, only four social-desirability items were included. Similar to items on established social-desirability scales, these items were selected because of their presumed familiarity to middle school students. The items related to "washing one's hands before meals," "saying unkind things to others," "saying 'please' and 'thank you,'" and "admitting mistakes." Composite scores across the four items could range from 0 through 4. The mean score for the total sample was 1.4, with a standard deviation of 1.13.

Teacher rating form. Teachers used their class records to rate students' academic achievement for the year as poor, average, or outstanding. To preserve student anonymity, teachers used student numbers rather than names to supply the requested data to the researchers. Scores on the achievement scale could range from 1 = poor through 3 = outstanding. The total sample mean was 1.96, with a standard deviation of .75.

Student Work Habits. This instrument was used by teachers to rate two students whom the teachers judged to have the best work habits in each class and two students judged to have the worst work habits in each class. The 20 items on this rating scale described work-related behaviors in the classroom, such as "Takes good care of books and other classroom materials" and "Makes good use of teacher feedback." Teachers used a 5-point Likert-type scale to indicate how similar each behavior was to the student rated. The Cronbach's alpha for this rating scale proved to be .975, with the item-total correlations ranging from .56 ("easily gets distracted") through .93 ("follows directions well"). Scores on this instrument could range from 20 to 100. The mean for the high group proved to be 93.54 and the mean for the low group was 46.36.

Procedures

The WES was administered as a part of the MSS on a school-wide basis in social studies classes because the theme of the WES was judged to be more compatible with social studies than with other curriculum areas. It was administered by the regular teachers via overhead projectors. Students were told that their responses to the questionnaire would be used in planning instructional activities for the coming year. Teachers were instructed to read each question and then pause while students filled in either the yes or no circle on their scan sheet. Immediately after the questionnaire was completed, answer sheets were collected in the order of student number.

Results

Psychometric Properties of the WES

The psychometric analyses for the WES included individual-item analysis, scale reliability, criterion-related validity assessment, and construct-related validity assessment. Those analyses were based on data for the total sample.

Item analysis. The first step in evaluating the adequacy of the WES items was to correlate item responses with the total social-desirability scores. These correlations ranged from -.18 through .23. Although seven of these correlations were statistically significant ($p < .05$), most accounted for a small amount of the variance (5% or less) in the targeted relation. Eight of 12 correlations were negative, and the overall correlation between the WES and social-desirability scores was -.03. The composite score for negatively worded WES items correlated negatively with social desirability (-.13), whereas the composite score for the positively worded

WES items correlated positively with the social-desirability measure (.10). Overall, it appears that social-desirability tendencies did not inflate work-ethic scores.

Classical-item statistics then were used to evaluate the inclusion of the WES items in the total scale (see Table 2). This classical-item approach involved a determination of the difficulty of items, the relation of each item to the total scale, and the effect of each item on the internal consistency of the scale. The proportion values (P values) included in the classical-item statistics showed that students were inclined to give responses favorable to work on roughly half of the items. Overall, the negative items produced more balanced responding (P values close to .50) than did the positive items.

The classical-item statistics also indicated that most items were correlated weakly to moderately with total scores on the WES. Both the point biserial and item-remainder correlations ranged from .20 to .46. The item most highly correlated with both the total score and the sum of the remaining items was Item 11: "Having to work hard to complete a task discourages me." The item least correlated with both the total and the remaining sum was Item 7: "Having good work habits doesn't mean I will be successful."

Reliability. The internal consistency of the WES was assessed by computation of Kuder-Richardson Formula 20 (K-R 20). An obtained coefficient of .70 met the minimum recommended by Nunally (1978) for research instruments. The classical-item analysis summarized in Table 2 indicated that most of the items contributed similarly to the overall K-R 20 value.

Criterion-related validity. Concurrent validity of the WES was assessed by correlating the WES scores with two criterion measures: academic achievement ratings and work-habits ratings.

The correlation with achievement ratings was .23 ($p < .0001$, equivalent to an effect size of .47), and the correlation with work-habits ratings was .39 ($p < .0001$, equivalent to an effect size of .85). These effect sizes for correlations were computed by a formula suggested by Wolf (1986, p. 35) for converting correlations into effect sizes. Because the teacher rating scales were not well established instruments, correlations between the WES and these dimensions were corrected for attenuation. The only correlation to change substantially was the correlation between WES and ratings of student work habits, which increased from .39 to .48 with the correction for attenuation.

Because the item analysis indicated that positively worded WES items were more likely to yield prowork responses than were the negatively worded items, WES scores computed separately for the positive (WEP) and negative (WEN) items were correlated with the criterion measures. The negative work-ethic total produced higher correlations than did the positive total both for achievement (.24 and .15, respectively) and for work-habits ratings (.40 and .27, respectively).

Criterion-related validity also was assessed by contrasting the WES scores of known groups (i.e., the three achievement groups and the two work-habits groups). Teacher ratings produced an approximate normal distribution for achievement: 368 students were rated as poor achievers, 537 as average achievers, and 323 as outstanding achievers. (The total N for teacher ratings was slightly lower than the total N for WES because teachers failed to rate a few students.) The average achievement rating of 1.96 was near the midpoint of the 1 through 3 achievement scale.

The WES means for the three achievement groups all differed significantly in the expected direction ($p < .05$): 7.57 for the low group, 8.39 for the average group, and 9.08 for the high group. The effect size for the difference in WES means for the high-achievement and low-achievement groups was .65; the effect size for the comparison between the low- and average-achievement groups was .34; and the effect size for the comparison between the average- and high-achievement groups was .30. These effect sizes were computed by dividing the differences in means by the composite standard deviation for the work-ethic scores.

The known-groups validity of the WES was supported further by contrasting the WES means for the high- ($n = 130$) and low- ($n = 108$) work-habits groups. The high group's WES mean (9.36) was significantly higher ($p < .0001$) than the low-group's mean (7.47). The difference in WES means between the high- and low-work-habits groups yielded an effect size of .79.

Construct-related validity. A combination of exploratory and confirmatory factor analyses was used to determine whether the WES is best represented as a one-factor or multifactor scale. The exploratory factor analysis included a principal factor analysis and a maximum likelihood factor analysis using an oblique rotation. The factor pattern obtained in the exploratory phase was later evaluated for goodness of fit in a confirmatory factor analysis. All of the factor analyses used a cross-validation procedure that involved randomly dividing the sample into two subsamples and then comparing the factor pattern for each subsample with that for the total sample. The computational procedure used in the factor analysis was a Proc Factor program within SAS (SAS Institute, 1989).

The cross-validation analysis used in the principal factor analysis showed that the two subsamples and the total sample yielded a similar factor pattern (see Table 3). With the exception of one item, which loaded in the .20s, all items loaded around .30 or above on the first extracted factor for the subsamples and the total sample. Also, the percentage of common variance explained by this one-factor model was similar (63% to 65%) across the samples. However, a scree test indicated the possibility of a secondary factor in addition to the primary factor.

The next step to determine whether a one-factor model adequately represented the data was to do a maximum likelihood factor analysis (see Table 3). The item loadings generated in this analysis were highly consistent with those in the principal factor analysis, with the primary factor explaining from 63% to 67% of the common variance in the samples. However, the adequacy of the one-factor model was brought into question by the relatively low Tucker and Lewis (1973) reliability values, which ranged from .70 to .78. The recommended value for the Tucker and Lewis coefficient is .90 and above.

Because of the possibility that a two-factor model would represent the data better than a one-factor model, a rotated factor analysis (using an oblique rotation) was subsequently performed (see Table 4). Although not presented in Table 4, the loadings for the maximum likelihood solution were virtually the same as those presented for the principal factor analysis represented in the upper half of Table 4. In the maximum likelihood solution, Factor 1 explained from 63% to 66% of the common variance across the subsamples and total sample, whereas Factor 2 explained from 17% to 18% of the common variance. Five items loaded about .40 or above on Factor 1, and five different items loaded about .40 or above on Factor 2. The Tucker and Lewis reliability coefficient for the maximum likelihood solution of the two-factor pattern

approximated the preferred value of .90. The primary theme represented in the Factor 1 items appeared to be utility of work, whereas the theme for the Factor 2 items appeared to be affective commitment to hard work.

To determine the portability of this two-factor pattern, a confirmatory analysis of alternative one-factor and two-factor solutions was done using LISREL 8 (Jöreskog & Sörbom, 1993). Most of the model-fit indexes yielded values more supportive of a two-factor than a one-factor model. The goodness-of-fit indexes included the Root Mean Square Error of Approximation, Goodness-of-Fit Index, Adjusted Goodness-of-Fit Index, Parsimonious Goodness-of-Fit Index, and Comparative Fit Index.

The most strongly supported two-factor model approximated the two-factor model generated in the rotated factor analysis. Using approximately .40 as the minimal factor loading, the confirmatory analysis indicated that nine items loaded on the primary factor and six on a secondary factor (see Table 5). Three items loaded on both the primary and secondary factors. Removing those three items (i.e., 1, 6, and 11) from the mix left six items for Factor 1 (the same five items that loaded on Factor 1 in the oblique rotation plus Item 7) and three items for Factor 2 (all of which loaded on Factor 2 in the oblique rotation). The two additional items (1 and 11) that had loaded on Factor 2 in the oblique rotation also loaded on Factor 2 in the confirmatory analysis, but these items loaded on Factor 1 as well.

The primary and secondary factors supported in the confirmatory analysis reflected the same two themes represented in the two-factor oblique rotation. The 6 items that loaded exclusively on the primary factor (2, 3, 5, 7, 8, and 10) in the confirmatory analysis all represent the utility of work (refer to Table 1). Examples of this theme are "Having good work habits

increases my chances of being successful," "Many problems can't be solved no matter how hard I try," and "Success comes more from luck than from effort." In contrast, the three items that loaded exclusively on the secondary factor (4, 9, and 12) relate to an affective commitment to hard work ("I enjoy a task that requires a lot of effort," "The best job is one where I could take it easy," and "I like a job where I can work hard to achieve goals").

Demographic Comparisons and Relations

Differences in WES means and related variables were examined by gender, ethnic group, and grade level. The statistical significance of differences in means for demographic groups was first determined. The internal consistency and criterion-related validity also were examined for the various demographic groups.

Gender. For most of the measures used in this study, girls scored higher than boys. For the WES, the girls' mean was 8.58 and the boys' mean was 8.00. For the achievement rating, the girls' mean was 2.10 and the boys' mean 1.80. For the work-habits rating, the girls' mean was 81.70 and the boys' mean was 62.08. All of these pairs of means differed significantly at the .0001 level. In contrast to the previously enumerated gender differences, boys and girls did not differ on the composite social-desirability items.

The internal-consistency measures for the WES responses did not differ by gender, but the criterion-related validity was higher for females than males. The correlation between the WES scores and work-habits ratings was .42 for girls and .31 for boys. The correlations between WES scores and achievement ratings were slightly higher for girls (.24) than for boys (.19). In contrast, girls' WES scores were correlated negatively with social-desirability scores (-.11), whereas boys' WES scores were correlated positively (.05) with social-desirability scores. This

pattern of correlations indicated that neither the WES mean for girls nor the correlations between their WES scores and the criterion measures were inflated by social-desirability response tendencies.

Ethnic groups. Although Native American and Asian American students were included in the total sample, the ns were too small to permit meaningful generalizations from their WES scores. Because of their larger samples, African American, Hispanic American, and European American groups were targeted for further statistical comparisons. This analysis showed that European American students scored significantly higher ($p < .05$) on the WES (mean = 8.50) than did the Hispanic American students (7.81) but not significantly higher than the African American students (8.16). No significant interaction in WES scores was obtained between ethnic groups and gender.

The internal consistency of WES responses appears borderline both for African American (.67) and Hispanic American (.64) participants as compared to the internal consistency for European American students (.74). Ethnic disparities in internal consistency might have been related either to careless responding or misunderstanding of the language of the questionnaire.

Although the correlations between the WES scores and the criterion measures were mostly similar for the three ethnic groups, the correlation between WES scores and work-habits ratings was considerably higher for Hispanic American (.50) than for African American (.31) or European American students (.39). However, a .21 correlation between WES and social desirability for the Hispanic American students, compared to a -.10 for African American students and -.05 for European American students, indicated that the higher correlation between

WES scores and work-habits ratings for Hispanic American students might have been inflated by social-desirability response tendencies.

Grade level. The sixth and seventh graders did not differ in their mean WES scores (8.19 and 8.09, respectively), but both scored significantly lower ($p < .05$) on the WES than did the eighth graders (8.62). However, the internal consistency of the WES was lower for eighth graders (.67) than for the other grade levels (.72). The three grade-level groups obtained similar means on the achievement and work-habits ratings. Although the correlations between WES scores and criterion measures were in the low through moderate range across grade levels, the correlation between WES scores and work-habits ratings was substantially higher for seventh graders (.47) than for sixth (.34) and eighth graders (.34).

Discussion

The major purpose of this study was to develop a brief research instrument to measure middle school students' work ethic. Although several instruments are available for measuring work values at the adult level, none is currently available to assess middle school students' perceptions of the value of work and their personal commitment to work. It is assumed that a strong work ethic at the middle school level could contribute to success in school and potentially lay the foundation for eventual work success in adulthood.

Responses to all items on the work-ethic instrument were correlated moderately with the total WES scores, and all items contributed similarly to the internal consistency of the scale. Because the internal-consistency measures for the total scale (.70) was marginally acceptable, avenues for increasing that coefficient must be considered. Two obvious strategies would be to increase the number of items and to use a Likert-type answer format that allows for greater

variability in responses. However, an increase in the number of items must be weighed against the additional time required to administer a longer scale. One of the practical appeals of the current WES is its brevity. A liability of a Likert-type format for this age group would be its greater complexity compared to a yes or no format.

In developing additional items for measuring the work ethic of middle school students, researchers should give special consideration to negatively worded items. In the current psychometric analysis, these items produced more balanced responding between favorable and unfavorable work-ethic responses than did the positively worded items. The negatively worded items also were more likely to be negatively or minimally correlated with social desirability than were the positive items.

Participants in research similar to the current study sometimes manifest an acquiescence response set (i.e., a tendency to agree with items irrespective of the directionality of item wording). Thus, yes responses to positively worded items might reflect either a prowork perspective or a tendency to agree with items. In contrast, the negative items (which required a no response to indicate a prowork perspective) might have provided a cleaner measure of work ethic. The comparative WES means for the positive and negative items provides some support for the latter notion. The means for the positive work-ethic items were significantly higher than the means for the negative work-ethic items (after reversed scoring).

The negative items on the WES reflected more a nonaffirmation of work than an indictment of work. Examples of negative items on the WES are the following: "Many problems can't be solved no matter how hard I try," "Having good work habits doesn't mean I will be successful," "The best job is one where I could take it easy," "Having to work hard to complete a

task discourages me." Contrast the tone of those items with a harsher judgment of work reflected in the following possibilities: "Working hard makes things worse," "Working hard is bad for a person," and "Working hard is dumb." Thus, caution is recommended in generalizing results from this study to the use of harsher levels of negativity in item wording.

Some research (e.g., Schriesheim & Hill, 1981) has indicated that negative wording for questions of a factual nature can produce less accurate responding than positive wording. Thus, negative wording might decrease the criterion-related validity of an instrument. However, this liability of negatively worded items certainly was not evident in the current investigation. In fact, the negative items proved to be stronger predictors of criterion measures than were the positive items.

The series of factor analyses pointed to a two-factor solution. The specific items that loaded on each factor varied somewhat across the series of factor analyses. However, the two major themes reflected in the factor analyses (i.e., utility of work and affective commitment to hard work) generally were consistent across the factor analyses. Although the factor analyses did not provide unequivocal support for two cleanly defined factors, a close examination of the items in the WES does strongly suggest the presence of these two themes. Our contention is that those conceptual themes are important to assess, whatever their empirical alignment.

Although some WES differences were obtained for all the demographic variables examined in this study, the most pronounced differences related to gender. In contrast to several previous studies that have indicated no overall difference in work values for males and females, girls in the current study obtained significantly higher WES scores than did boys. Furthermore, girls' WES scores were more predictive of performance ratings than were the boys' WES scores.

The credibility of these gender difference is bolstered by the small negative correlation between WES scores and social-desirability measures for the girls.

The current WES is not without room for further development. The scale was designed to measure a generic orientation to work. More domain-specific work-ethic scales (such as in school, athletics, and job), however, might better predict performance in those areas. It is possible that a student might have a strong work ethic in some domains and a weak work ethic in other domains. A generic measure of work ethic might blur those distinctions and, consequently, lose predictive potential.

The generalizability of the results from this study are somewhat limited by the nature of the sample used. Some ethnic groups (Native Americans and Asian Americans) were underrepresented, and no rural students were included in the sample. A more representative sampling of students by ethnicity and locale would allow for greater generalization of response patterns on the WES. The current sample is largely restricted to African American, Hispanic American, and European American students in urban and suburban settings.

Despite the limitations of the WES, it addresses an important societal value that has been underresearched at the middle school level. Educators who work with early adolescents might be advised to make the promotion of a high work ethic an educational priority. Without an appreciation of both the intrinsic and extrinsic values of work, early adolescents might be less likely to become contributing members of the adult work force. To determine the effectiveness of efforts to promote a high work ethic, instruments are needed that will assess reliably and validly the work ethic of middle school students. The Work Ethic Scale presented in this study is a step in that direction.

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Table 1

Items in the Work Ethic Scale

1.	Having to put forth a lot of effort to get a job done is a real pain.
2.	Having good work habits increases my chances of being successful.
3.	Many problems can't be solved no matter how hard I try.
4.	I enjoy a task that requires a lot of effort.
5.	Success comes more from luck than from effort.
6.	I feel good when I work hard to complete a task.
7.	Having good work habits doesn't mean I will be successful.
8.	Many problems can be solved if I keep trying.
9.	The best job is one where I could take it easy.
10.	Good outcomes result more from effort than from luck.
11.	Having to work hard to complete a task discourages me.
12.	I like a job where I can work hard to achieve goals.

Table 2

Classical-Item Statistics for WE

		Correlation		K-R 20 = .70
Item	P value[a]	Point biserial[b]	Item remainder[c]	K-R 20 if item deleted
1 (Neg.)	0.559	0.40	0.40	0.66
2 (Pos.)	0.912	0.25	0.25	0.69
3 (Neg.)	0.580	0.30	0.30	0.68
4 (Pos.)	0.441	0.25	0.26	0.64
5 (Neg.)	0.830	0.38	0.39	0.67
6 (Pos.)	0.870	0.39	0.39	0.67
7 (Neg.)	0.504	0.20	0.20	0.70
8 (Pos.)	0.889	0.34	0.34	0.68
9 (Neg.)	0.458	0.36	0.36	0.67
10 (Pos.)	0.846	0.34	0.34	0.68
11 (Neg.)	0.673	0.46	0.46	0.65
12 (Pos.)	0.749	0.35	0.35	0.67

[a]The P value is a proportion of examinees who responded yes to a positive item or no to a negative item. [b]Point biserial correlation is a popular item discrimination index, a computationally simplified Pearson's r between the dichotomously scored item and the total score. [c]Item-remainder coefficient is the correlation of an item with the sum of the remaining items.

Table 3

Factor Pattern for Work Ethic Scale: One-Factor Solution From the Three Sets of Data

Item		Principal factor analysis factor pattern			Maximum likelihood factor pattern		
		Analysis[a]	Validation[b]	Total[c]	Analysis[a]	Validation[b]	Total[c]
		Factor 1	Factor 1	Factor 1	Factor 1	Factor 1	Factor 1
1	(Neg.)	0.54	0.46	0.50	0.53	0.45	0.49
2	(Pos.)	0.30	0.35	0.32	0.30	0.35	0.32
3	(Neg.)	0.34	0.40	0.37	0.33	0.40	0.37
4	(Pos.)	0.32	0.29	0.30	0.31	0.28	0.29
5	(Neg.)	0.46	0.55	0.51	0.44	0.53	0.49
6	(Pos.)	0.42	0.54	0.47	0.41	0.52	0.46
7	(Neg.)	0.22	0.26	0.24	0.21	0.26	0.24
8	(Pos.)	0.45	0.39	0.42	0.43	0.37	0.40
9	(Neg.)	0.46	0.42	0.44	0.46	0.41	0.43
10	(Pos.)	0.45	0.45	0.46	0.44	0.44	0.44
11	(Neg.)	0.59	0.57	0.57	0.58	0.55	0.56
12	(Pos.)	0.39	0.48	0.43	0.38	0.44	0.40
n		627	586	1,213	627	586	1,213
Exp. Var.[d]		65%	63%	65%	66%	63%	67%
Tucker & Lewis[e]		NA	NA	NA	0.78	0.70	0.75

[a]The analysis data set was randomly selected from the total data set. [b]The validation data set was the remainder of the random selection for the analysis data set. This data set was used for the cross-validation study. [c]The total data set consisted of all participants with complete information. [d]Explained common variance. [e]Tucker and Lewis's Reliability Coefficient.

Table 4

Rotated Factor Pattern and Structure for WE: Two-Factor Solution From the Three Sets of Data

	Factor pattern (structure)					
	Analysis data		Cross-validation		Total	
Item	Factor 1	Factor 2	Factor 1	Factor 2	Factor 1	Factor 2
1 (Neg.)	0.18 (.39)	0.45 (.54)	0.21 (.37)	0.33 (.43)	0.20 (.38)	0.39 (.48)
2 (Pos.)	0.41 (.38)	-0.06 (.13)	0.44 (.42)	-0.05 (.16)	0.41 (.39)	-0.05 (.15)
3 (Neg.)	0.43 (.41)	-0.04 (.17)	0.35 (.40)	0.11 (.28)	0.40 (.40)	0.03 (.21)
4 (Pos.)	-0.16 (.10)	0.53 (.46)	-0.10 (.12)	0.46 (.42)	-0.13 (.11)	0.50 (.44)
5 (Neg.)	0.58 (.56)	-0.05 (.22)	0.65 (.63)	-0.04 (.27)	0.62 (.60)	-0.06 (.24)
6 (Pos.)	0.24 (.36)	-0.24 (.36)	0.30 (.46)	0.33 (.48)	0.27 (.41)	0.28 (.41)
7 (Neg.)	0.18 (.21)	0.07 (.16)	0.24 (.27)	0.06 (.18)	0.20 (.24)	0.07 (.17)
8 (Pos.)	0.41 (.47)	0.11 (.31)	0.45 (.45)	-0.01 (.21)	0.43 (.46)	0.05 (.26)
9 (Neg.)	0.13 (.32)	0.41 (.47)	0.03 (.27)	0.47 (.49)	0.09 (.30)	0.44 (.48)
10 (Pos.)	0.52 (.52)	0.00 (.25)	0.54 (.52)	-0.04 (.23)	0.53 (.52)	-0.02 (.24)
11 (Neg.)	0.20 (.43)	0.48 (.58)	0.28 (.46)	0.39 (.52)	0.24 (.45)	0.43 (.54)
12 (Pos.)	-0.11 (.16)	0.57 (.51)	-0.08 (.24)	0.66 (.63)	-0.09 (.20)	0.61 (.57)
n	627		586		1,213	
Interfactor r	0.47		0.49		0.48	
Exp. var[a]	65%	19%	63%	17%	65%	18%
	Maximum Likelihood Solution					
Interfactor r	0.46		0.38		0.45	
Exp. Var.[a]	66%	18%	63%	17%	66%	18%
Tucker & Lewis[b]	0.91		0.80		0.86	

[a]Explained common variance. [b]Tucker and Lewis's Reliability Coefficient.

Table 5

Confirmatory Factor Analyses of 12 Work Ethic Items

	Analysis data (n = 609)		Validation data (n = 611)		Total (N = 1,221)	
	Preferred Model		Preferred Model		Preferred Model	
Item	F1	F2	F1	F2	F1	F2
1 (Neg.)	0.286	0.546	0.330	0.567	0.391	0.573
2 (Pos.)	0.732		0.842		0.826	
3 (Neg.)	0.785		0.575		0.716	
4 (Pos.)		0.723		0.698		0.717
5 (Neg.)	1.000		1.000		1.000	
6 (Pos.)	0.619	0.379	0.642	0.401	0.671	0.447
7 (Neg.)	0.532		0.525		0.551	
8 (Pos.)	1.054		0.933		1.034	
9 (Neg.)		0.987		0.912		0.870
10 (Pos.)	0.943		0.917		0.951	
11 (Neg.)	0.638	0.467	0.409	0.546	0.528	0.565
12 (Pos.)		1.000		1.000		1.000
Model description	Two-factor free TD 11 8		Two-factor free TD 11 8		Two-factor free TD 11 8	
Interfactor r	0.552		0.535		0.505	

Note. The analysis and cross-validation data sets are not the same data sets used for exploratory factor analyses. This study employed weighted least squares with tetrachoric correlations and asymptotic covariance matrix. All factor loadings were significant statistically at $p < .01$.